

PHASE IA CULTURAL RESOURCE INVESTIGATION

THE WOOD-RIDGE SITE

**WOOD-RIDGE AND CARLSTADT BOROUGHES
BERGEN COUNTY
NEW JERSEY**

JULY 1997

Prepared for:

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Prepared by:

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SDMS Document



82615

PROJECT SUMMARY

A. Identification

- 1. Type of Investigation:** Cultural Resource Reconnaissance Survey (Phase IA)
- 2. Performed by:** The Cultural Resource Consulting Group, Highland Park, N.J.
- 3. Performed for:** PTI Environmental Services, Waltham, MA.
- 4. Reviewing Agencies:** United States Environmental Protection Agency - Region 2 and the New Jersey Department of Environmental Protection, Historic Preservation Office; performed in accordance with Section 106 of the National Historic Preservation Act.
- 5. Principal Investigator(s):** Kevin Walczak, M.A. and Richard Veit, M.A.

B. Project Location: Wood-Ridge and Carlstadt Boroughs, Bergen County, N.J. The study area is bordered by Berrys Creek to the east, by the Henkel and Randolph properties to the south and west, by Nevertouch Creek and the Henkel drainage ditch to the south, and by Ethel Boulevard and a railroad track to the north. The tax map designation for the tract, which is known as the Wood-Ridge Site, is Block 229, Tax Lots 10.01, 10.02, and 8 in Wood-Ridge, and Block 84, Tax Lot 5 in Carlstadt.

C. Project Description

- 1. Proposed development:** Remediation of the Wood-Ridge Superfund Site.
 - 2. Size of study area:** Approximately 40 acres (see Figure 1).
 - 3. Potentially significant cultural resources encountered:** none
- D. Purpose of Study:** to determine whether previously documented potentially significant cultural resources are located in the area of potential effect, and to determine the likelihood of undocumented resources existing there.

E. Methods Employed: surface inspection; documentary research

F. Date of Investigation: June and July 1997

G. Location of Report Copies: Cultural Resource Consulting Group, Highland Park, N.J.; USEPA Region 2; Department of Environmental Protection, Historic Preservation Office, Trenton, N.J.; and PTI Environmental Services, Waltham, MA.

ACKNOWLEDGEMENTS

The Cultural Resource Consulting Group wishes to thank the following individuals for their assistance with this project:

Linda Hansen and David Langseth - PTI Environmental Services
Monica Mianeki, P.E., and William Nierstedt, P.P., A.I.C.P. - Hackensack
Meadowlands Development Commission, Lyndhurst, New Jersey
Staff of the Department of Environmental Protection, Historic Preservation Office

Research was directed by Richard Veit, M.A., and Kevin Walczak, M.A. (principal investigators). The report was prepared with the assistance of Kristian Eshelman (editor), Dawn Turner (draftsperson), and Robin French (research assistant). The report was written by Richard Veit and Kevin Walczak. Peter Primavera served as project director.

Richard Veit, M.A.
Kevin Walczak, M.A.
Principal Investigators
The Cultural Resource Consulting Group

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I. Introduction

In June and July of 1997, the Cultural Resource Consulting Group (Highland Park, N.J.) performed a Phase IA (reconnaissance-level) cultural resource survey for PTI Environmental Services Inc. (Waltham, Mass.). The study was carried out in accordance with Section 106 of the National Historic Preservation Act, and is subject to review by the New Jersey Department of Environmental Protection, Historic Preservation Office (NJDEP-HPO) and the United States Environmental Protection Agency (USEPA).

The study area is a 40-acre irregularly shaped site that is bordered by Berrys Creek to the east, by the Henkel and Randolph properties to the south and west, by Nevertouch Creek and the Henkel drainage ditch to the south, and by Ethel Boulevard and a railroad track to the north, in the Boroughs of Wood-Ridge and Carlstadt, Bergen County, New Jersey (see Figures 1 and 2). The entire tract is potentially the subject of remediation.

The purpose of this investigation is to identify known or potential historic, architectural, or prehistoric cultural resources in the subject property, and determine whether previously undocumented resources are likely to exist there. The methods used were the following:

1. Preliminary background research, involving examination of relevant State files, historic maps, USDA soils information, and various secondary sources.
2. Visual reconnaissance of the study area.

After examining the documentary evidence and the proposed remediation site, the investigators concluded that the study area has a low potential to contain archaeological deposits. No potentially National Register-eligible structures stand on or near the property. We conclude that the project will have no effect on any known potentially eligible resources. No further cultural resource investigation is recommended.

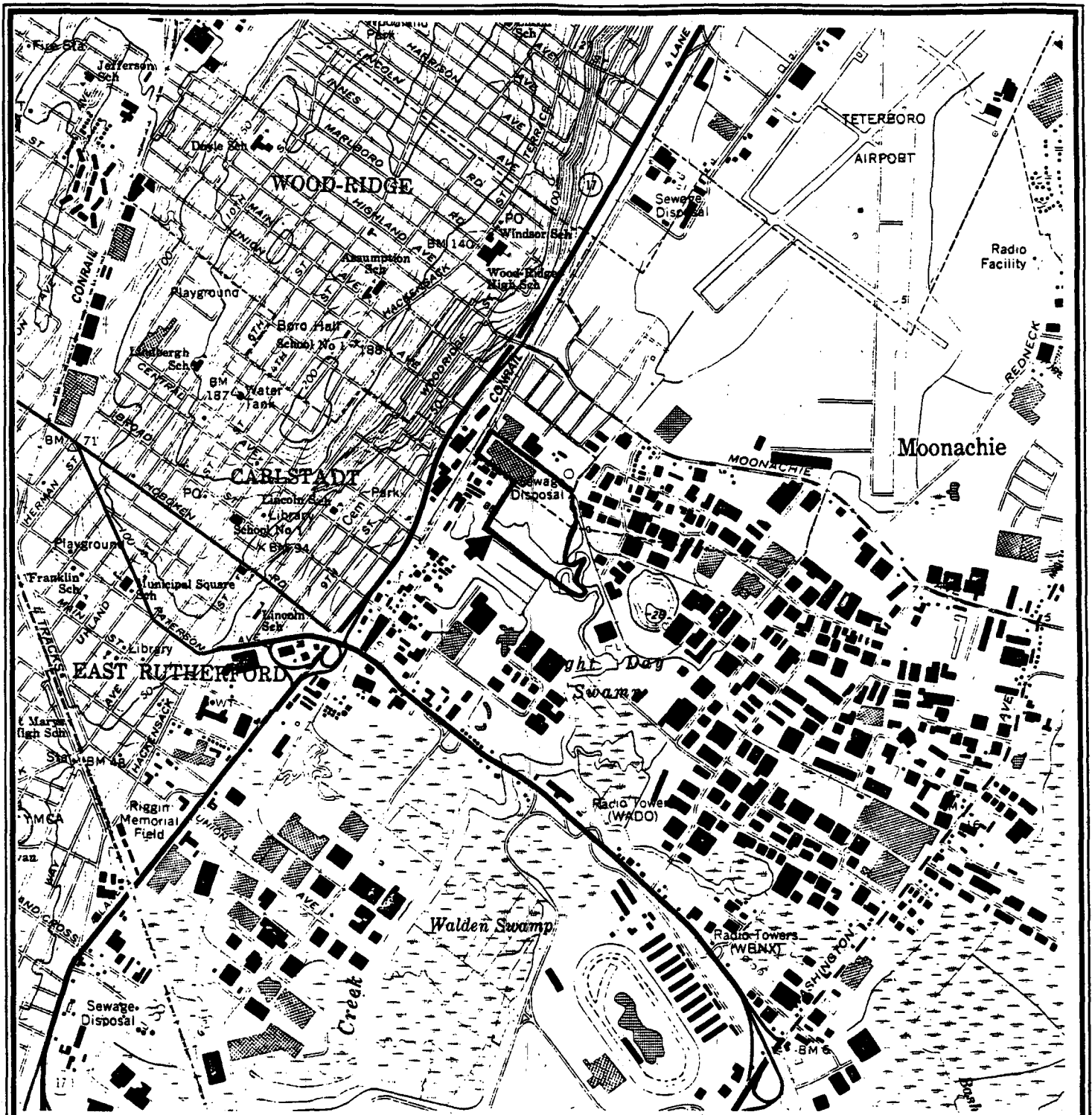


FIGURE 1: USGS LOCATOR MAP. ARROW INDICATES STUDY AREA LOCATION.
 SOURCE - USGS 7.5' QUADRANGLE: WEEHAWKEN, N.J. 1967 (PHOTO REVISED 1981).

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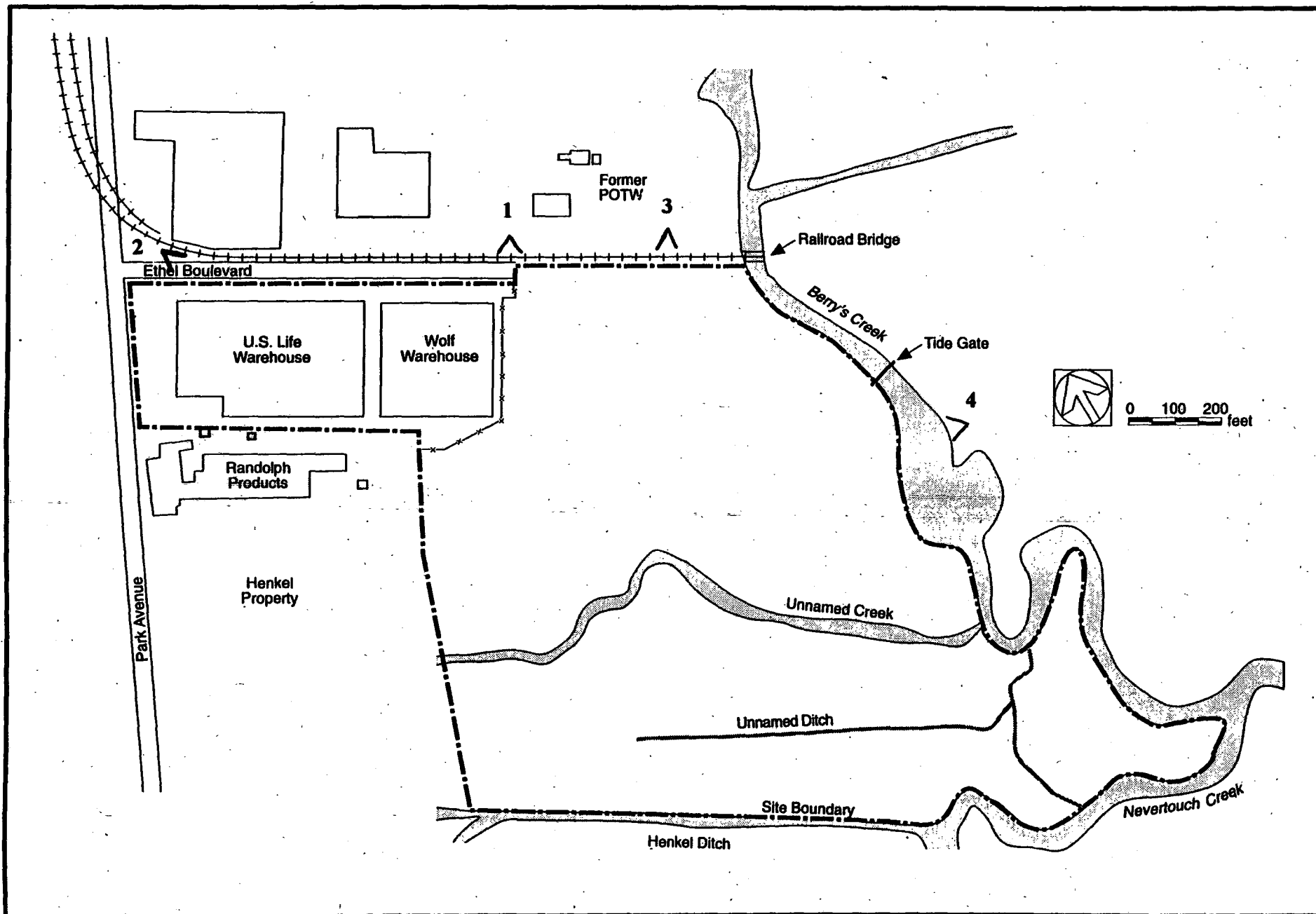


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FIGURE 2: PLAN VIEW OF STUDY AREA WITH PROJECT BOUNDARIES
AND PHOTO ANGLES. BASE MAP PROVIDED BY PTI ENVIRONMENTAL SERVICES.

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II. Environmental Setting

The Wood-Ridge Site is located in the Triassic Lowland subprovince of the Piedmont Lowlands physiographic province in a portion of the Glacial Lake Hackensack bottom (see Figure 1). The topographic relief of the Piedmont area is generally characterized by wide valleys and gently rounded hills lying at elevations that vary from 100 to 400 feet above sea level (Wacker 1975:5). The underlying bedrock geology of the project vicinity consists of sedimentary deposits, such as sandstone and shale (Wolfe 1977:256). These deposits are collectively known as the Triassic age Newark Group, and form low ridges and valleys which trend northeast-southwest, essentially parallel to the Palisades Ridge and the First Watchung Mountain. The depth of the bedrock valleys ranges from 55 feet below sea level at the Sparkill Gap to more than 250 feet below sea level around Newark (Wolfe 1977:256). Sedimentation from Glacial Lake Hackensack and from advances and retreats of Pleistocene ice fronts resulted in the deposition of massive beds of glacial lacustrine clays and glacial till which now fills the bedrock valleys and mantle the sandstone ridges. The wetlands now known as the Hackensack Meadowlands are the present surface of one of these filled-in bedrock valleys. The Wood-Ridge site lies within the Hackensack Meadowlands and unfilled portions of the site are wetlands.

Following the drainage of Glacial Lake Hackensack after the glacial retreat (10,000 B.P.), the lake bottom went through a complex succession of hydrologic and vegetational regimes before achieving its modern condition. With the gradual post-Pleistocene sea level rise, the initial freshwater marsh was gradually invaded by increasing amounts of sea water and consequent tidal influence. Much of the area is at or just above present sea level (Wolfe 1977:256). Rising sea level combined with sediment influx from the Hackensack River and surrounding high ground has resulted in the burial of former land surfaces as indicated by subterranean peat deposits (Widmer 1964:139; Harmon and Tedrow 1969:3). The early dominant vegetational community of freshwater white cedar swamp was gradually replaced by saltwater marsh along the advancing margin of sea water (Harmon and Tedrow 1969:3). Numerous animal fossils including a number of proboscideans found buried in the bogs beneath the present surface (e.g., Schuberth 1968:197-199) indicate that the area was well populated with a variety of animal species after the exposure of the lake bottom.

Soils in the study area are dominated by Urban Land (UR) and Udorthents, wet substratum (Ue) (see Figure 3). The Urban Land is nearly level to gently sloping and is found in areas that have been cut and filled or in which more than 85 percent of the ground surface is covered by paved surfaces or buildings (Goodman 1995:40). This soil unit is best suited for commercial and industrial development. The Udorthents are found on upland stream terraces, in drainageways, in areas of marine and estuarine deposits, and on floodplains and slopes that vary from 0 to 5 percent (Goodman 1995:39). Soils in this unit have usually been disturbed to a depth of 3 feet or more and are mostly suitable for intense recreational purposes.

As discussed earlier, the project vicinity is located within former tidal wetlands that have been partially filled for industrial purposes (see Figures 4-6). Most of the site is currently overgrown

and repopulated with native wetland vegetation, and intrusive plant species are present in areas of previous disturbance (see Figure 6 and Plates 1-4). Berrys Creek runs along the eastern border of the site, with several associated intermittent drainages crossing the southeastern portion of the site. The ground surface is nearly level to gently sloping, with elevations on site ranging from 0 to 12 feet above sea level. Presently, two warehouses (the Wolf property and the U.S. Life property), operating as a food distributor and a storage facility, occupy the area where the mercury processing plant once stood (see Figure 6 and Plate 2).



FIGURE 4: SOILS MAP. ARROW INDICATES STUDY AREA LOCATION. SOURCE - SEYMOUR D. GOODMAN, 1995 - SOIL SURVEY OF BERGEN COUNTY (USDA SOIL CONSERVATION SERVICE) SHEET 11.

0 $\frac{3}{8}$
mile



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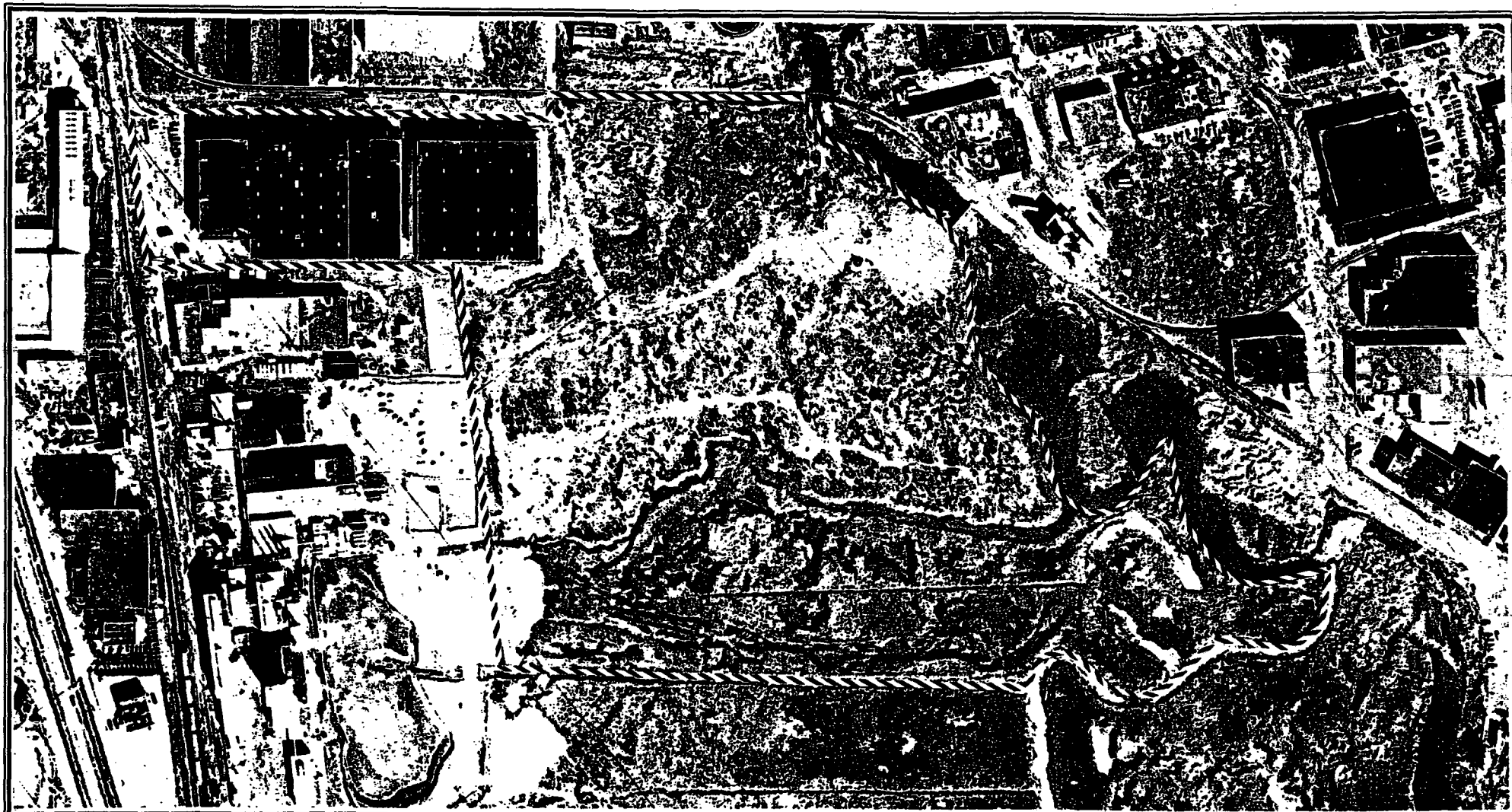
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FIGURE 4: AERIAL VIEW OF STUDY AREA (1972). STRIPED LINE DENOTES STUDY AREA BOUNDARIES.

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FIGURE 5: AERIAL VIEW OF STUDY AREA (1978). STRIPED LINE DENOTES STUDY AREA BOUNDARIES.

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FIGURE 6: AERIAL VIEW OF STUDY AREA (1992). STRIPED LINE DENOTES STUDY AREA BOUNDARIES.

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PLATE 1: GATE PROVIDING ACCESS TO THE WOOD-RIDGE SITE, LOCATED JUST EAST OF A MODERN WAREHOUSE.

VIEW FACING: S/SW
DATE: 7/2/97
PHOTOGRAPHER:
KEVIN WALCZAK
ROLL 1, NEG. 34, EXP. 16

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**PLATE 2: WAREHOUSES CONSTRUCTED ON THE SITE OF THE WOOD-RIDGE
CHEMICAL CORPORATION PLANT.**

VIEW FACING: SOUTH
DATE: 7/2/97
PHOTOGRAPHER:
KEVIN WALCZAK
ROLL 1, NEG. 24, EXP. 6

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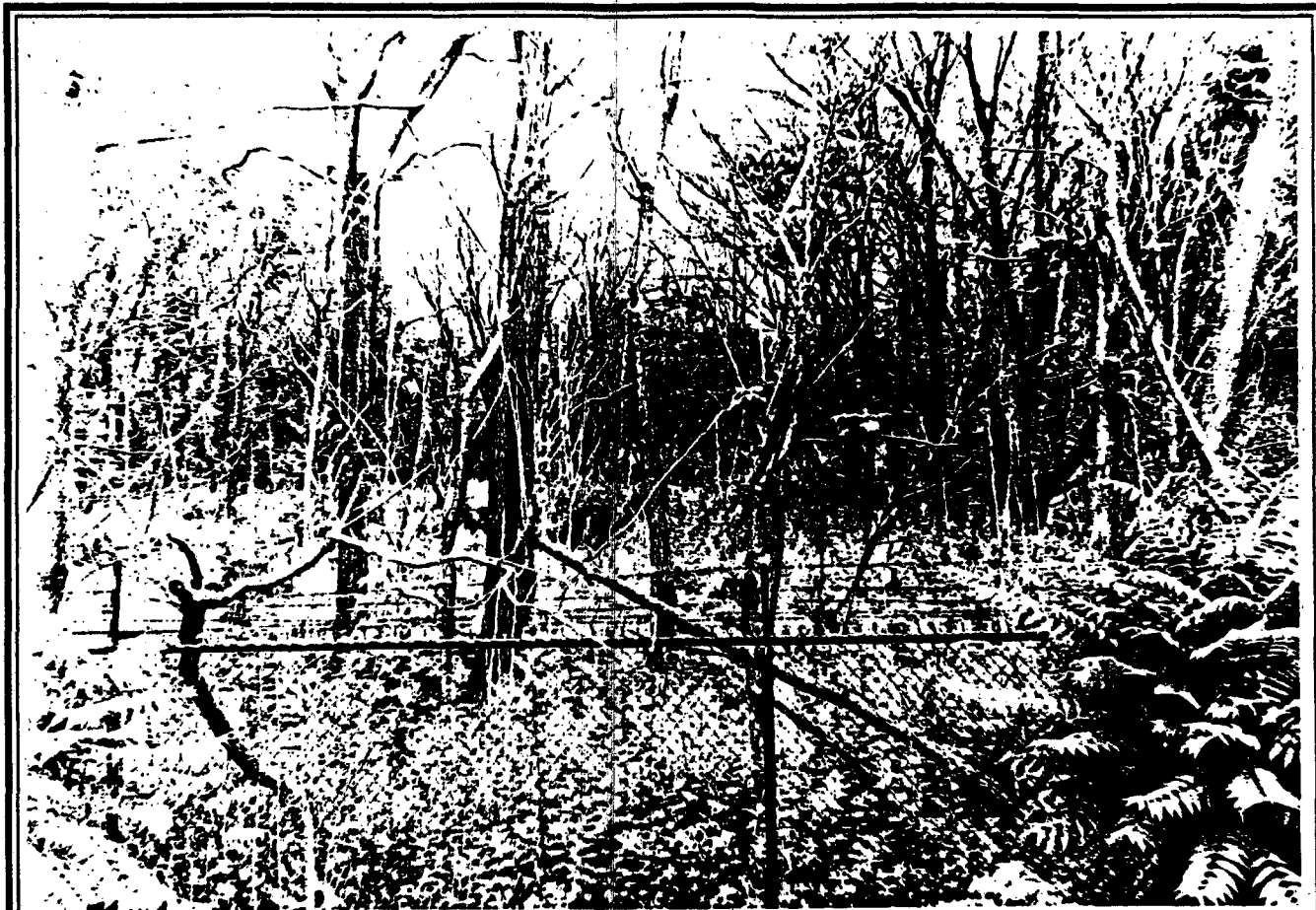


PLATE 3: TYPICAL PLANT COVER OF DECIDUOUS TREES AND SHRUBBERY. VIEW FACING SOUTH/SOUTHWEST TOWARD THE SITE'S NORTHERN PERIMETER.

VIEW FACING: S/SW
DATE: 7/2/97
PHOTOGRAPHER:
KEVIN WALCZAK
ROLL 1, NEG. 31, EXP. 13

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**PLATE 4: VIEW WEST ACROSS BERRYS CREEK TOWARD THE WOOD-RIDGE SITE,
ILLUSTRATING MARSHY CONDITIONS.**

VIEW FACING: WEST
DATE: 7/2/97
PHOTOGRAPHER:
KEVIN WALCZAK
ROLL 1, NEG. 25, EXP. 7

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III. Culture History and Archaeological Sensitivity

A. Prehistoric Period

Note: Part of the following text is excerpted from the Cultural Resource Consulting Group's *Cultural Resource Reconnaissance: Hackensack Meadowlands District, Hudson and Bergen Counties, New Jersey* (RAM 1989).

Except for the Delaware River Valley, knowledge of the prehistory of northern New Jersey is quite limited. This is true despite the fact that many prehistoric sites have been located and recorded. Several government-sponsored surveys conducted during the first half of the century recorded sites in this region (e.g., Skinner and Schrabisch 1913; Cross 1941). In addition, amateur investigations such as that of Schondorf (1940) have also led to the discovery of a large number of sites. Unfortunately, the utility of the data produced by these surveys for interpreting regional prehistory is extremely limited (Williams, Rutsch, and Flinn 1978).

For the most part, neither the professional nor the amateur endeavors yielded data beyond the reporting of site location and a summary description of the artifacts recovered. The artifacts were mostly obtained by surface collection rather than excavation. Furthermore, the surface collections were gathered in a subjective manner to produce what was thought to be a representative sample of the site assemblage. Therefore, uncontrolled biases are likely to have skewed the relative proportions of various artifact categories, rendering these collections unusable for many forms of analysis. Much of the data which has been collected is unpublished and many of the artifact collections have little or no documentation (Williams, Rutsch and Flinn 1978:13; Philip LaPorta 1986, personal communication cited in RAM 1989). Only a very few sites in this region have been adequately excavated and reported (Kraft and Mounier 1982b:167). In addition to the paucity of scientific investigation in this region, urban and suburban development in northeastern and north-central New Jersey has probably disturbed or obliterated a very large number of prehistoric sites.

Williams, Rutsch, and Flinn (1978) have summarized the prehistory of the Passaic River Basin. They give a valuable overview of the problems which hamper study in this area, but can do little more than present informed speculation about the details of its prehistory. No equivalent study has been undertaken for the Hackensack River Basin, but the Meadowlands have seen a few archaeological surveys conducted over the last 20 years (Gimigliano et al. 1979; Grossman and Associates 1992, 1995; RAM 1989; Alterman 1989)

The situation in the adjacent New York City area is only slightly better. The tremendous impact of urbanization has left very little undisturbed terrain where aboriginal sites might survive. A small number of sites have been excavated in the outer boroughs of the city (Suffolk County Archaeological Association 1978; Truex 1982). All of the known sites are in coastal settings, but this may have more to do with the pattern of modern development than with aboriginal site locations.

The environment which developed in the basins of the former glacial lakes, Passaic and Hackensack, differs significantly from that of adjacent regions. The extensive wetlands in these extinct lake bottoms would have supported a wide variety of aquatic and semi-aquatic species. The range of resources would have been even greater in areas where lowlands and highlands are juxtaposed. Therefore, it is likely that at least some portions of this region were attractive to pre-historic populations. Indeed, a large number of sites have been recorded in the Glacial Lake Passaic bottom (Williams, Rutsch, and Flinn 1978:59).

The bulk of the known sites in the Passaic River Basin appear to date from the Late Archaic through the Late Woodland periods (Williams, Rutsch, and Flinn 1978:16-18). Evidence of earlier occupations is either sparse or nonexistent (Williams, Rutsch, and Flinn 1978:14-16). However, in this area and in most of northern New Jersey, including the Piedmont, Highlands, and Intermountain regions, there appears to have been a significant change in the form of occupation from the Late Archaic to the Late Woodland period. While many large Archaic sites are known, Late Woodland occupations appear to have consisted entirely of small, temporary camps (Kraft and Mounier 1982b:171). As these authors suggest, this contrast may be a reflection of a change in the subsistence pattern of northern New Jersey populations. Although the wetlands of the Piedmont would have been very attractive to hunter-gatherers, without drainage it would have been poorly suited to primitive agriculture. Late Woodland agriculturalists appear to have preferred the periodically flooded Delaware Valley floodplain to the perennially swampy Piedmont or the thin-soiled uplands. However, these latter areas would have continued in use for the procurement of wild plant and animal resources. The archaeological manifestations of such activities would tend to be relatively ephemeral as compared with those of habitation sites.

The greater scarcity of archaeological data available for the Hackensack River drainage in comparison with the Passaic makes it impossible to assess its aboriginal culture history in any detail. However, given the similarity in geology and other environmental variables between the two glacial lake basins and their physical proximity, it is likely that they may share significant cultural elements. However, in at least one aspect the two glacial lake basins differ in their subsequent developments. While the Glacial Lake Passaic Basin is located in what is now the upper portion of the Passaic River drainage, the Glacial Lake Hackensack Basin encompasses the mouth of the Hackensack River drainage. Consequently, the latter has become subject to tidal influence and saltwater invasion while the former has not. This difference has had a profound influence on the evolution of the Hackensack Meadowlands during the Holocene, and in turn on the distribution pattern of archaeological deposits.

As discussed in Section II, the Glacial Lake Hackensack bottom is underlain by Triassic bedrock which has been eroded into ridges and valleys. The entire lake bottom was covered with glacial till and lacustrine clay during the Pleistocene. Given the significantly lower sea level at the end of the Pleistocene than at present, erosion cut into the lake bottom in the existing bedrock valleys just as it did in other major stream systems (Wolfe 1977:159-162). Subsequent sea level rise has gradually drowned the down-cut channels and terraces and caused a progressive alluviation which buried older ground surfaces. These buried surfaces are marked by peat deposits

and cedar logs (Harmon and Tedrow 1969:3), and sometimes by animal fossils (Schubert 1968:197-199). There is reason to believe that evidence of human occupation may also exist on these surfaces.

Evidence from similar settings in other parts of the state indicate that wetlands were an important part of aboriginal occupation from the earliest times. The Glacial Lake Passaic bottom is filled with hundreds of prehistoric sites (see for example RAM 1987), as are other former glacial lakes (Kraft and Mounier 1982a:58). Excavations in the Trenton Bottom, a large freshwater tidal wetland along the Delaware River between Trenton and Bordentown, have revealed a deeply buried late Paleo-Indian component in an area which has been covered by alluvium due to sea level rise (Cavallo 1988). Marshall (1982:43), in a review of the Paleo-Indian period in New Jersey, concludes that in the Piedmont Region, "mucklands, swamps, [and] glacial drainages" exhibit a high frequency of revisited hunting camps, animal processing stations, and hunting and fishing camps. Specialized fishing camps are also known from later periods in the tidal wetlands of the Trenton Bottom (Cavallo 1987). The very important Excavation 14 at the Abbott Farm Site, part of the Abbott Farm National Landmark, is located at the base of a terrace slope bordering on these same tidal wetlands (Cross 1956). This setting is similar to that on the edges of the present study area.

Existing site records (NJSM, ONJH etc.) indicate many sites on the rim surrounding the study area, the sandstone ridges and Palisades Sill, but very few sites on the Meadowlands bottom itself despite the evidence cited above which indicates that this environment may have been conducive to aboriginal utilization. Interviews with private collectors and examination of unpublished data revealed the same pattern (Philip LaPorta 1988, personal communication cited in RAM 1989). Unfortunately, Schondorf (1940), whose surveys have been useful in studying the Passaic drainage (e.g., RAM 1987), did not examine this area (Philip LaPorta 1988, personal communication cited in RAM 1989).

The contrast between this pattern of aboriginal occupation in the wetlands versus the lowlands was apparently carried into the historic period. There is no documentary evidence of aboriginal villages in the Hackensack Meadowlands. Rather, known sites of this type were located in the surrounding high ground such as Communipaw, Constables Hook, and Paterson (Robert Grumet 1988, personal communication cited in RAM 1989; cf. Grumet 1979).

There are probably several factors which contribute to this situation. First is the bias imposed due to the method by which most of this data was gathered. Virtually none of these sites were recorded as a result of planned systematic surveys. They were found by amateurs or early professionals who tended to look in the most convenient places rather than collect a scientifically valid sample from all environmental settings (Kraft and Mounier 1982a:61-62). Therefore, the pattern of site distribution probably has more to do with the behavior of past archaeologists rather than that of past aborigines.

The second factor which has influenced the pattern of presently known sites is related to the geomorphological development of the study area as described above and in Section II. Two views exist on this topic. The first suggests that before sea level reached approximately its present elevation, significantly different landforms existed in the study area at significantly lower elevations. These landforms have been buried by alluvium, but appear to remain relatively undisturbed in at least some locations. Evidence from other parts of the state strongly suggests that these fossil landforms probably supported human occupations. Furthermore, this view suggests that since sea level only began to approach its modern elevation sometime during the Late Archaic Period (Edwards and Merrill 1977: Figure 1), it is likely that Paleo-Indian, Early and Middle Archaic, and even many later sites will not be found on the present surface of the Meadowlands, but at some considerable distance below. The post-glacial deposits may be as much as 30 feet thick (Wolfe 1977:256). Aboriginal sites could have been created at any time during the post-glacial period, and, therefore may exist throughout this depth.

A variety of historic-period activities have made it even more likely that aboriginal sites have been buried below the present surface. These include increased sedimentation due to ground-disturbing activities in the uplands such as farming and development, and intentional filling of wetlands for development.

In contradiction the view expressed above, recent studies (Grossman and Associates 1992, 1995) that have addressed the possibilities for buried surfaces have come to a different conclusion. A study conducted by Grossman and Associates (1992, 1995) for the Hackensack Meadowlands Development Commission, after looking at multiple lines of evidence (i.e., pollen records, geomorphology, shoreline transgression, etc.), concluded that "what is presently marshlands and swamp was....as recently as one to two thousand years ago....forested dry land that was crossed by fresh water streams. This fast-land habitat was amenable to human occupation, and may be potentially preserved today at relatively shallow depths [a couple of feet] below the current ground surface" (Grossman and Associates 1992:13). Considering the paucity of pollen data collected for the Hackensack Meadowlands for which Grossman's conclusions rest (Heusser 1963; Carmichael 1980; Sirkin 1977; LBA 1989), it seems premature to ascribe to either his view or the more traditionally accepted one without a more representative sample of environmental data.

With regard to the present study area, environmental factors suggest a low to moderate probability for aboriginal occupation. The nearest water source is Berrys Creek immediately to the east, and the site is located on high ground adjacent to the Meadowlands. Files on record at the New Jersey Historic Preservation Office and the New Jersey State Museum show no known prehistoric sites within one mile of the project area. Although the current project site is not located in the study area covered by Grossman's reports (1992, 1995), various environmental factors that he found conducive to predicting prehistoric settlement are found in the project area, namely the "areas of high ground within the Meadowland today, and [the] bands of now inundated, but formerly dry land along the banks and the confluences of primary stream tributaries" (1992:32). Unfortunately, due to the extensive alteration to the project landscape by various 20th-century industries (see Figure 4), it is unlikely that any intact prehistoric deposits remain.

B. Historic Period

Regional History

Note: The following regional history is excerpted from the Cultural Resource Consulting Group's *Cultural Resource Reconnaissance: Hackensack Meadowlands District, Hudson and Bergen Counties, New Jersey* (RAM 1989).

In the 17th century, the Meadowlands were included within the bounds of many land patents. Among the more noteworthy were the following: in 1688 Captain William Sanford purchased what would later be termed the New Barbadoes Patent, consisting of over 15,000 acres, of which 10,000 acres were meadow. It was named New Barbadoes not out of any physical resemblance to the Caribbean island, but for Captain Sanford's original home on the island. Kearney, Lyndhurst, North Arlington, and Rutherford were included in that patent. Another tract was the Berry Patent, which was acquired in 1669. It lay to the north of the Sanford tract and included East Rutherford, Carlstadt, Moonachie, and Little Ferry. The Berry Patent included all of the current study area. A third tract was called the Secaucus Patent, which was bought from the Indians in 1663 by Governor Stuyvesant.

The area was first settled by the Dutch in the 1620s and 1630s. Areas of colonization included the vicinity of Bergen and Paulus Hook (now part of Jersey City). During the 1640s and 1650s, conflict between the Dutch settlers and the Indian population resulted in the destruction of some Dutch settlements and devastating reprisals against the Indians. The Town of Bergen was settled in 1655 following the Dutch and Indian wars. Survivors of the hostilities and newly arrived settlers chose to concentrate their presence into a small and more easily defendable community. Bergen had jurisdiction over huge plantations which extended into the meadows. The Town of Bergen was incorporated in 1658 and is now included within the limits of Jersey City.

Dutch settlement continued in parts of the various land patents following the subdivision of those patents in the late 17th and early 18th centuries. Permanent settlements formed on the higher ground around and away from the basin. These included Bergen, Acquackanonk (now Passaic), Hackensack, and Newark. Bergen (now Jersey City) and Hackensack were located on the Hackensack River, with Bergen situated on the Newark Bay. Acquackanonk and Newark were located on the Passaic River. With the exception of Newark, these settlements were formed by the Dutch. Newark was established by settlers of British descent from Connecticut. Even in New Barbadoes, which was founded by Nathaniel Kingsland, who came from the English colony on Barbadoes, much of the 17th- and early 18th-century settlement was by Dutch from Long Island and Manhattan. The settlements developed on important waterways and overland routes, and became important regional and political centers. Today Jersey City, Passaic, and Newark are county seats.

In the late 17th and 18th centuries the natural resources of the meadows were exploited. Fishing, hunting, harvesting of salt hay, and cutting of cedar trees were performed by the farmers in addition to the use of some of the meadows for pasture.

The earliest form of transportation and trade was by water, as is evidenced by the location of important regional centers on the Passaic and Hackensack Rivers. The earliest overland routes were simply Native American footpaths, slightly improved for horse traffic. During the 18th century new roads were opened as the economy of the interior regions began to develop. The location of the growing port city of New York, just east of the meadows, was the destination for the produce and goods of these developing hinterlands. Consequently, some roads were laid out which crossed the meadows to Bergen, where the connection with New York was made by boat across the Hudson River. A cedar plank road was built from the copper mines in the vicinity of North Arlington to Bergen, and another road was constructed joining Newark and Bergen. Ferry service was established and bridges were built, enabling goods to be transported across the Passaic and Hackensack Rivers. The meadowlands were uninhabited, and seen more as an obstacle to progress than a stimulus.

Between the end of the Revolutionary War and the mid-19th century, the economy stabilized and in most places the population increased. Interior markets were developed and goods were shipped to New York City in return for necessary commodities. Markets and transportation centers, especially those close to New York City, were becoming urbanized, and were important transshipment points. Newark and Jersey City became cities in this period, and their growth reflected the development of the economy and the population increase.

In the first quarter of the 19th century, turnpikes were established, often on roads already in use, with the aim of improving the conditions of existing roadways. The Belleville Turnpike and Newark Turnpike were opened in this period on the two roads mentioned above. Also built in this period was the Paterson Plank Road, which provided a direct route from Paterson to Jersey City via Acquackanonk. The Paterson Plank Road was a product of what Grossman and Associates (1992:28) called the "plank road fever" of the mid-19th century. Such roads were built by laying roughly 3-inch-thick oak planks side by side to create a surface 8 or 9 feet in width. The high cost of maintaining these roads and the competition from canals and railroads, which were more efficient means of transport, eventually quelled this enthusiasm for plank road construction (Grossman and Associates 1992:28; Alterman 1989:14).

More innovations in transportation followed, with the establishment of canals and railroads. In 1831 the Morris Canal was opened from the Delaware River to the Passaic. By 1836 it was extended to the Hudson River. The Morris Canal ran just south of the Meadowlands through Newark with its terminus at Jersey City, taking a circuitous route to avoid Bergen Hill. Two of the earliest railroads, the Paterson and Hudson Railroad and the New Jersey Railroad, crossed the Meadowlands. The latter rail line roughly followed the course of the current Amtrak corridor. It is noteworthy that the major roads, railroads, and the Morris Canal followed similar

routes, indicating the direction of trade routes and the location of the important regional centers in this early industrial period.

Apart from the major urban centers on the periphery of the meadows, there was little development elsewhere in the Meadowlands. Perhaps the largest settlement in the proximity of the meadows at the start of the mid-19th century was a community known as the English Neighborhood (now Ridgefield). By 1834 it contained a post office, a Dutch Reformed Church, a Christian Church, three taverns, two stores, and no more than twenty houses (RAM 1989). Other communities were developing around the edge of the meadows, but they were not considered significant enough to be marked on maps or mentioned in gazetteers of the period.

The tremendous growth in the second half of the 19th century was a direct result of industrialization, and with the firm establishment of the factories came the various waves of immigrants from Europe to work in them. In this period the periphery of the Meadowlands became crowded with industrial and residential areas to accommodate this growth. By the end of the 19th century many more rail lines crossed the Meadowlands, and freight yards had been built in the meadows. Surprisingly, no more major roads were built until the 20th century, but trolley lines were constructed along many of the roads which crossed the meadows. Established parts of settlements like Jersey City, Little Ferry, Secaucus, and Carlstadt extended into the meadows, but on the whole the meadows remained an uninhabited area, surrounded by intensive growth.

Landfilling and drainage projects were crucial to the development of the Meadowlands. This had apparently begun by the late 17th century, when part of the marshlands near Kearney and Harrison were drained by Major Nathaniel Kingsland (Grossman and Associates 1992:29; Gimigliano et al. 1979:37). Other individual attempts at land reclamation were made during the 18th century. The 19th century saw the formation of several local meadows companies. These organizations were incorporated in the hopes of draining large sections of meadows, which could, in turn, be placed in agricultural production (Grossman and Associates 1992:29).

Early in this century, as the State and Federal governments began to take an increasingly active role in public health issues, a concerted effort was made to eliminate the mosquito-breeding potential of the Meadowlands. County Mosquito Control Commissions were founded in Hudson and Bergen counties (Grossman and Associates 1992:30). Hundreds of miles of ditches were cut through the marsh, and tens of thousands of acres drained (Grossman and Associates 1992:31; Righter 1978:28). These efforts created islands of uplands among the marsh, which were subsequently developed.

In the 20th century the most notable changes to directly affect the meadows have been the growth of the trucking industry, the improvement and construction of roads, the encroachment of industrial and commercial facilities, and the use of much of the area for landfill. The popularity of the automobile and use of trucks to transport goods did much to curtail the passenger and freight service on the various railroads across the meadows. The huge freight yards and maintenance facilities which were situated in the meadows have largely been replaced by truck

depots. In this period some industrial plants were built in the meadows. Construction was not greatly stimulated until major highways were built near and through the meadows in the mid-20th century.

In the mid-20th century Routes 3, 17, and 46 were built, as well as the Pulaski Skyway between Newark and Jersey City. Undoubtedly the most important of the newer routes has been the New Jersey Turnpike, constructed in 1952. This route connects the New York metropolitan area with other major highways and urban centers. Consequently, it has become an artery for the trucking industry and has successfully promoted the establishment of industrial, and particularly large commercial parks in the meadows.

Another feature of the middle and late 20th century has been the extension of the landfilling activities in the meadows. These disposal sites, including the current study area, have filled large portions of wetlands.

In recent years there has been a conscious effort to carefully plan future land use in the meadows in a way that is environmentally sensitive. Important among these has been the establishment of the Hackensack Meadowlands Development Commission in 1969.

Site-Specific History

The boroughs of Wood-Ridge and Carlstadt are located in Bergen County. Established on March 7, 1683, Bergen County was one of the first four counties formed in East Jersey (Snyder 1969:75). Ten years later, in 1693, the county was divided into two townships, Bergen and Hackensack. Both Wood-Ridge and Carlstadt were located in what was then Bergen Township. The first known European purchaser of land in what would become Wood-Ridge was Captain John Berry. Berry received his patent in 1699 from the English Lord Proprietors John Berkeley and Sir George Carteret (Clayton 1882:44). The property Berry acquired "extended from the Hackensack River to what is now Saddle River, and probably included the site of the present village of Hackensack" (Clayton 1882:44). However, Berry did not settle on his new property. The first settler was George Brinckerhoff, an emigrant from Holland. Brinckerhoff purchased 200 acres in 1685 and built a house near the site of the Wood-Ridge Memorial Library (Archaeological Survey Consultants 1982:6-7). The Brinckerhoff family would remain prominent in local affairs until the end of the 19th century.

Other early settlers of Wood-Ridge included Phillip Berry Jr., who arrived in the mid-18th century and was apparently a descendant of John Berry, and David I. Anderson, who purchased property in 1834. Most of these early settlers supported themselves through agriculture, using the region's waterways to transport their products to market. The area remained largely rural until the end of the 19th century. Wood-Ridge derives its name from its location on several ridges to the west of the Meadowlands and the Hackensack River.

The study area also extends into the Borough of Carlstadt. Carlstadt was originally part of Lodi, and is situated immediately south of Wood-Ridge. Like Wood-Ridge, it was largely settled by individuals of Dutch descent. Both the Berry and Brinckerhoff families were prominent in this area as well. The community of Carlstadt dates from 1851 when "a society of two hundred and forty German workmen, mainly mechanics known as the German Democratic Land Association" purchased 140 acres "... to procure comfortable, healthy homes for themselves and others of moderate means at the least expense" (Clayton 1882:226). The community is named for its organizer, Charles Klein, and was officially set off from Lodi Township on March 12, 1860 (Snyder 1969:76). According to Clayton's *History of Bergen and Passaic Counties* (1882:226), "The village of Carlstadt is largely engaged in manufacturing, nearly half of its population being employed in its various factories, and the town presents a thriving New England-like appearance. The names on the buildings, the hotel signs, and the advertisements, however, are all in the German language and contrast strangely with the many peculiarly American features of the town."

As previously noted, Carlstadt grew out of a successful land speculation scheme. An attempt at a similar development in Wood-Ridge proved unsuccessful, and the town remained a quiet farming community until the end of the 19th century.

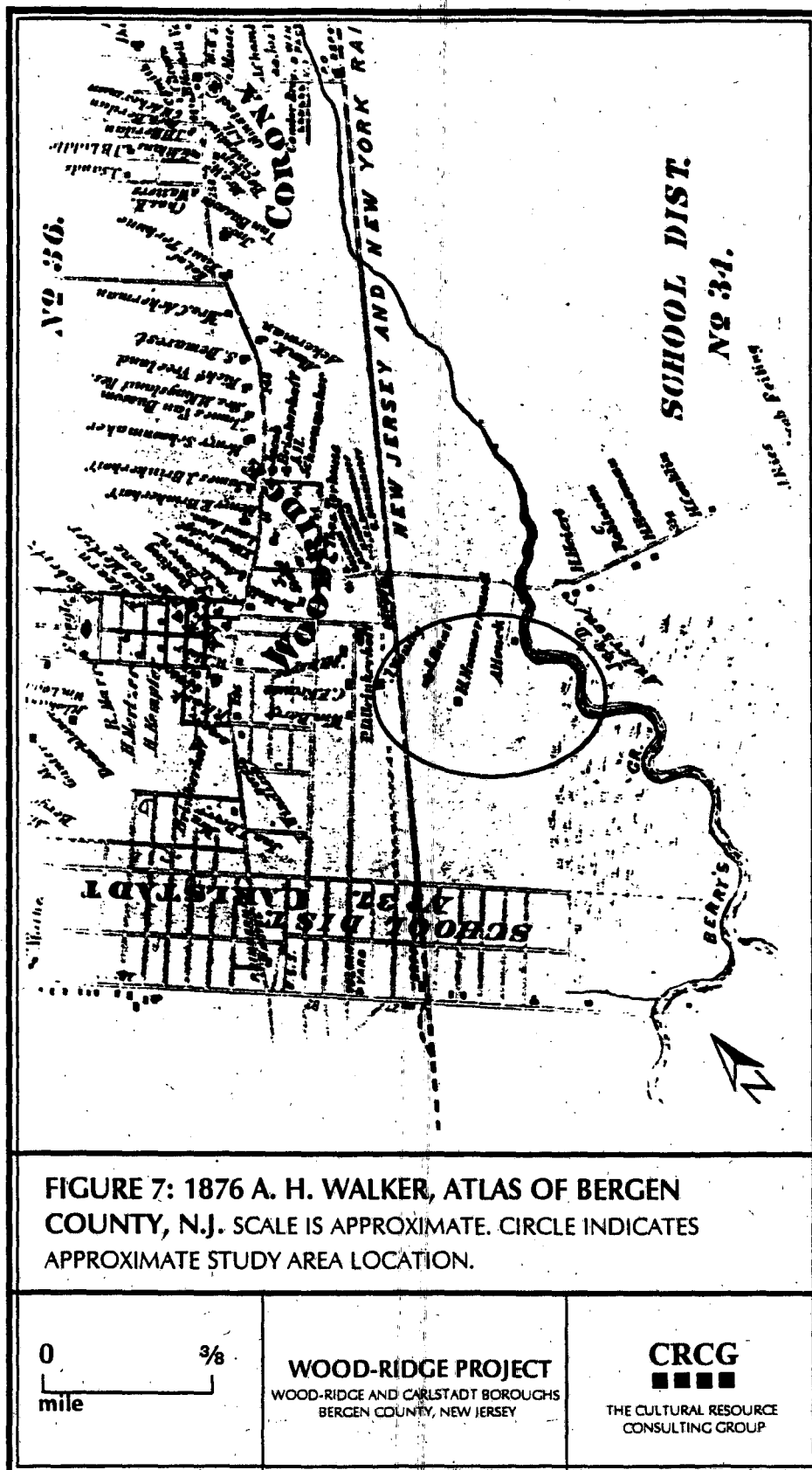
Since secondary sources provide very little information about the study area, a review of historic maps of the region was undertaken. The earliest available map with any detail is Robert Erskine's 1776 map of northern New Jersey (Erskine 1776). It shows no development within the study area. Similarly, Thomas Gordon's 1828 map of New Jersey shows Berry's Creek, but again has no detail within the current study area (Gordon 1828). Walker's 1876 *Atlas of Bergen County* appears to show three houses within the study area. Unfortunately, the vagaries of 19th century mapping prevent us from placing their location with any degree of accuracy (Figure 7). E. Robinson's & Company's 1902 map shows no structures in the study area, and Bromley's 1913 map of Bergen County likewise contradicts Walker's Atlas and shows the study area as meadows (Figure 8). The only nearby development is an abandoned brickworks in Carlstadt (Bromley 1913). Early in this century Bergen County was well known for its brickworks, though the majority were located in the vicinity of Hackensack (Ries 1909).

Substantial development of the property began in the early 20th century. In June of 1929 the Carlstadt Development and Trading Company, a corporation based in Maryland with its business offices in New York, leased the property to the F. W. Berk and Company, a corporation also based in Maryland but wholly owned by Steetly, Inc., an English firm (Jack McCormick and Associates, Inc. 1977:4). At this point the property was mostly marshland (ERM-Southeast, Inc. 1985:3.3). In December 1943 F. W. Berk purchased the property outright (Jack McCormick and Associates, Inc. 1977:4). The property they leased, and subsequently purchased, was used to manufacture mercury products. The products manufactured are likely to have included "fungicides, insecticides, red oxide of mercury (ROM), yellow oxide of mercury (YOM), phenyl mercuric acetate (PMA), and other organic and inorganic mercury compounds" (ERM-Southeast, Inc. 1985:3.3). In 1960 F. W. Berk and Company was dissolved and the property sold to the Velsicol Chemical Corporation (Velsicol), a Delaware corporation (ERM-Southeast, Inc.

1985:3.3). They, in turn, formed the Wood-Ridge Chemical Corporation, a Nevada corporation that manufactured mercury oxides, inorganic mercury salts, phenyl mercuric acetate powders, other phenyl mercuric powders, phenyl mercuric solutions, and triple distilled mercury (Memphis Environmental Center, Inc. 1996:10). During this time, an approximately 10-acre portion of the property between Berrys Creek and the 7-acre mercury plant site was used as a dumping site (ERM-Southeast, Inc. 1985:3.4). Solid waste, chemical wastes, and demolition debris were all reported to have been dumped there. In 1968 Ventron Corporation, a Massachusetts corporation, purchased the Wood-Ridge Chemical Corporation and the approximately 7-acre parcel on which the mercury processing facility was located from Velsicol (ERM-Southeast, Inc. 1985:3.4). Velsicol retained the rest of the property. An aerial photograph taken in 1972 shows the property at the time (Figure 4). Subsequently, on May 20, 1974, Robert and Rita Wolf purchased a 7-acre portion of the property from Ventron. The Wolfs demolished the mercury plant, transferred title to one of the parcels to the U.S. Life Insurance Company, and constructed a warehouse on each parcel (ERM-Southeast, Inc. 1985:3.6). A 1978 aerial photograph depicts the condition of the site at this time, and differs considerably from the photograph taken six years earlier (Figure 5). Apparently many of the barrels and other materials formerly present on the site had been disposed of.

Since the late 1950s the tract has been the subject of extensive regulatory involvement. These issues are amply summarized in several reports describing the environmental characteristics of the site (Memphis Environmental Center, Inc. 1996; ERM-Southeast 1985; Jack McCormick and Associates 1977) and will not be repeated here.

Presently the two warehouses constructed by the Wolfs stand on the site and are occupied. The property is partially fenced and is marked as containing hazardous waste. An inspection of the tract from nearby vantage points showed that much of the property is heavily overgrown, with a mix of young deciduous trees and shrubbery. No remains of structures were visible. An aerial photograph taken in 1992 shows that the entire property, other than the tract with the two warehouses, is covered by a thick growth of trees.



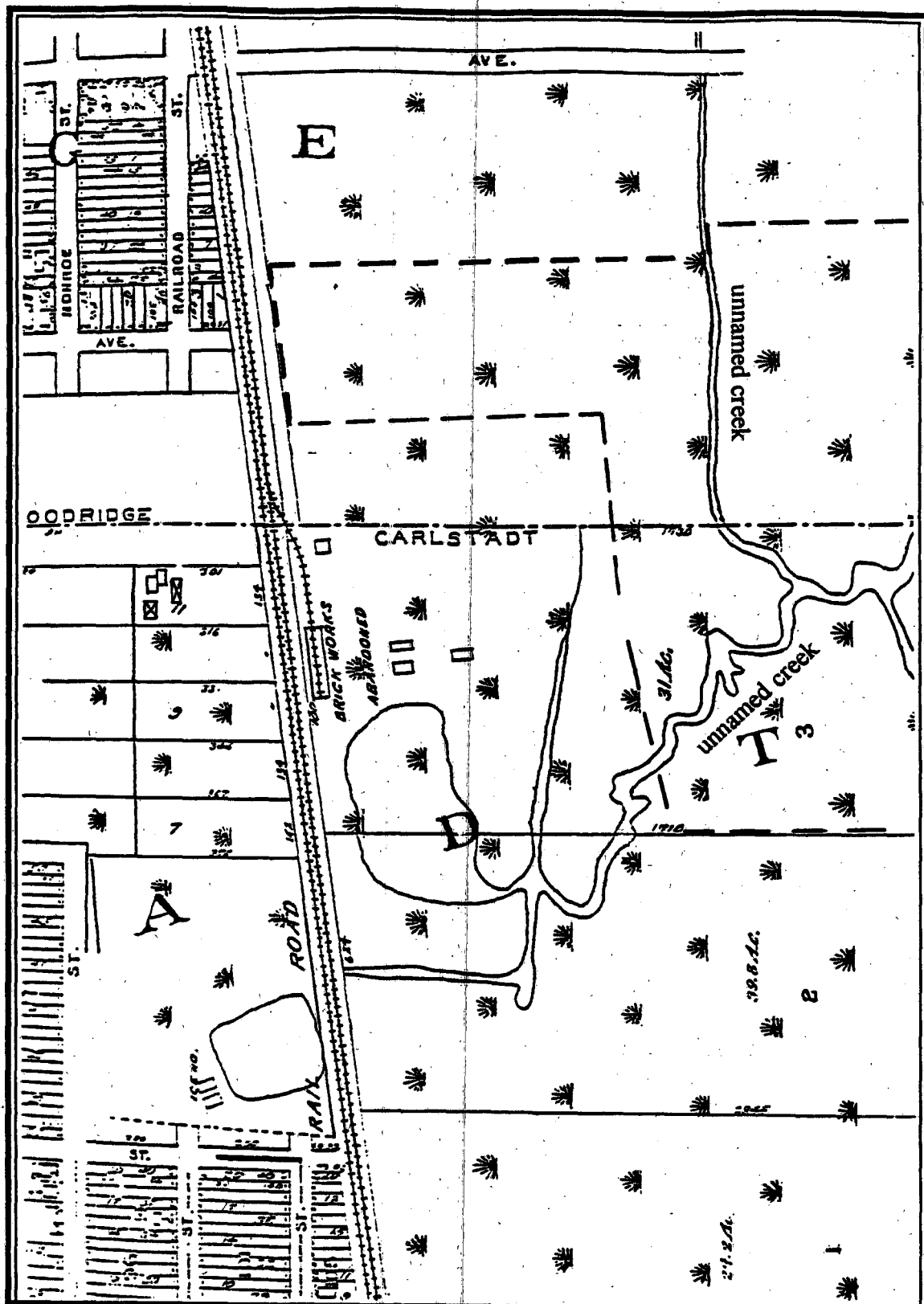


FIGURE 8: 1913 G. W. BROMLEY, ATLAS OF BERGEN COUNTY, N.J.,
 PLATE 4. SCALE IS APPROXIMATE. DASHED LINE DENOTES APPROXIMATE
 BOUNDARIES FOR WESTERN PORTION OF STUDY AREA.

0 300
 FEET

WOOD-RIDGE PROJECT
 WOOD-RIDGE AND CARLSTADT BOROUGHS.
 BERGEN COUNTY, NEW JERSEY

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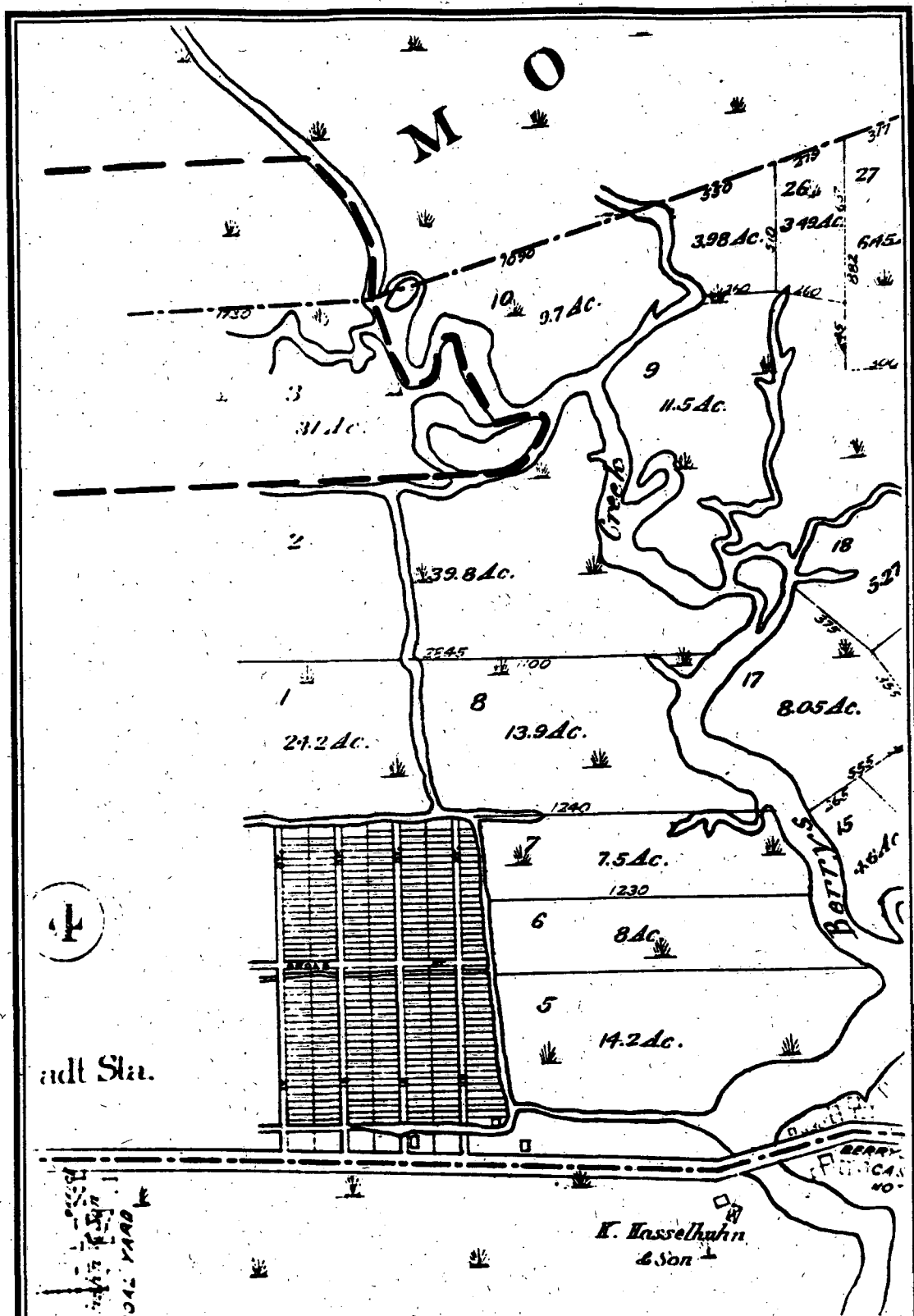


FIGURE 9: 1913 G. W. BROMLEY, ATLAS OF BERGEN COUNTY, N.J.,
 PLATE 8. SCALE IS APPROXIMATE. DASHED LINE DENOTES
 APPROXIMATE BOUNDARIES FOR EASTERN PORTION OF STUDY AREA.

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WOOD-RIDGE PROJECT
 WOOD-RIDGE AND CARLSTADT BOROUGHS
 BERGEN COUNTY, NEW JERSEY

CRCG
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IV. Research and Results

A. Background Research

Background research focused on identifying locations of Euro-American (historic) or Native American (prehistoric) sensitivity in the project area and vicinity. Various repositories were consulted in order to collect information on the historic and environmental background of the study area. These repositories included:

Alexander Library, Department of Special Collections and Archives Rutgers University (New Brunswick).

Historic Preservation Office, Department of Environmental Protection (Trenton).

Archaeology/Ethnology Bureau, New Jersey State Museum (Trenton).

Hackensack Meadowlands Development Commission (Lyndhurst)

The potential for Native American use of the study area was assessed through a review of state-sponsored surveys (Skinner and Schrabisch 1913 and Cross 1941) and site records available at the New Jersey State Museum. Other sources included cultural resource management reports housed at the Historic Preservation Office (Archaeological Survey Consultants 1982; Bergen County Office of Cultural and Historic Affairs 1980; Ebasco Environmental 1992; Grossman and Associates 1992, 1995; Richard Grubb and Associates 1989), the index of the Archaeological Society of New Jersey's periodical Bulletins (Bello 1986, 1990, 1995), and other published sources related to the local area (e.g., Gordon 1834; Barber and Howe 1868; Clayton 1882; Van Valen 1900; Westervelt 1923; Seventy Fifth Anniversary Committee 1969). Prior Euro-American land use was researched primarily through a review of historic maps (Erskine 1776; Gordon 1828; Walker 1876; E. Robinson and Co. 1902; Bromley 1913) and the previously noted secondary sources. Also consulted were the Historic Preservation Office's files on properties determined eligible for listing on the National and State Registers of Historic Places.

These sources indicated that no previously documented cultural resources exist on the property. The New Jersey State Museum lists no archaeological sites within less than two miles, and no historic structures have been listed on the property or immediately adjacent. Though several historic maps show the property in some detail, only Walker's 1876 *Atlas of Bergen County, New Jersey* shows any structures that may be on the property. As noted in Section III b of this report, the map is not accurate enough to allow the exact location of these structures to be identified. Subsequent maps fail to show any buildings on the study area.

B. Field Investigation

A site visit was conducted on July 2, 1997, by CRCG archaeologists Richard Veit and Kevin Walczak with the aim of identifying any visible surface signs of cultural resources, examining the environmental setting, and determining the extent of ground disturbance. Surface reconnaissance involved inspection of any existing aboveground architectural features, evaluation of topographic anomalies and areas of obvious ground disturbance, and close examination of areas exhibiting a clear surface. The perimeter of the tract was walked and notes were made regarding the landform, presence or absence of disturbance, and varieties of plant life.

Currently the tract supports a thick growth of shrubbery, *Phragmites*, and deciduous trees. In the areas examined, very little evidence of ground disturbance was noted; however, the aforementioned review of aerial photographs showed intense disturbance of some areas of the tract. This was particularly true of the east-central portion of the property, which extends peninsula-like into Berrys Creek and his area and had been partially cleared. Construction of the two warehouses near the northwestern end of the tract probably caused additional disturbance to the ground surface previously affected by construction of the former mercury processing plant.

In summary, the site inspection did not identify any previously unknown archaeological sensitivities on the property. No concentrations of artifacts, or existing aboveground architectural features, were noted.

VI. Conclusions and Recommendations

Based on environmental conditions at the site and the lack of known prehistoric sites nearby, the investigators conclude that the tract has a low potential to contain Native American sites. With regard to historic-period resources, while the possibility exists that three houses stood near the northwestern end of the study area, subsequent construction on that part of the tract, of both the mercury processing plant and later the two warehouses, makes it highly unlikely that intact archaeological resources exist in this location. Portions of the remainder of the tract served during this century as a dump site for municipal waste and industrial waste. Prior to this occurrence, the site (except for the uplands where the three houses may have stood) would have had a low potential for historic archaeological deposits and a low to moderate potential for prehistoric archaeological deposits. The subsequent dumping and grading activities which are known to have occurred are likely to have destroyed any deposits which may once have existed.

In summary, neither documentary research nor visual reconnaissance indicated the presence of potentially significant cultural resources on the tract. Furthermore, it has been the location of extensive landscape alterations during the 20th century, which have greatly diminished its archaeological potential. No further cultural resource investigation is recommended.

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APPENDIX 1:
PRINCIPAL INVESTIGATOR
QUALIFICATIONS

Name & Title: Richard Veit, Archaeologist & Historian

Project Assignment: Principal Investigator

Years Experience: 7 **With This Firm:** 6 **With Other Firms:** 1

Education: Degree(s)/Years/Specialization

Ph.D. candidate / Anthropology & Archaeology (University of Pennsylvania)

M.A. / 1991 / Anthropology (College of William and Mary)

B.A. / 1990 / Anthropology (Drew University)

Other Experience and Qualifications Relevant to the Proposed Project:

Rich Veit has worked at historic and prehistoric period archaeological sites throughout the Middle Atlantic region. His projects have included assessments of impact under Section 106 of the National Historic Preservation Act and similar state and local regulations. He has conducted and directed cultural resource surveys at all levels of intensity ranging from reconnaissance to data recovery. His areas of particular expertise include cultural resource survey (Phase I, II & III), historic sites, historic material identification and analysis, documentary research, and historic cemetery investigations.

Mr. Veit has participated in a variety of cultural resource investigations at historic sites ranging from the 17th through 20th centuries, historic canals, historic mills, taverns, and cemeteries. In addition, he has worked on Paleo through Woodland Period prehistoric sites in New Jersey, Connecticut, Pennsylvania, New York, and New Mexico. He has participated in projects involving road improvements, pipeline construction, sewer expansions, and commercial developments.

Cultural Resource Surveys and Consulting Services: Mansion Ridge Golf Club, Monroe, Orange County, New York. Extensive study of historic estate with many standing buildings, and 19th-century mining community and prehistoric site.

PSE&G's Estuary Enhancement Program, Delaware & New Jersey. Mr. Veit directed the CRCG studies of over 100 tracts to investigate sensitivities and treatment of historic and archaeological sites, as part of a 16,500 acre project. The study area included the seven counties and two states which surround the Delaware Bay.

Multiple Cultural Resource Investigations: Edison Tyler Estates, Edison, Middlesex County, New Jersey A project which included investigations of historic and archaeological resources on a large development project. Resources included a Native American site which was investigated through an Archaeological Data Recovery and numerous historic and architectural resources. The project required complex regulatory reviews from several different agencies.

Cultural Resource Investigations: Shippen Manor, Oxford, Warren County, N.J. Archaeological excavations performed as part of the restoration of an 18th-century ironmaster's residence associated with the operation of the historic Oxford Furnace.

Phase I/II Archaeological Investigation at Wal-Mart - Exton, Chester County, Pa. Principal Investigator for investigations of four prehistoric and three historic period sites. Currently preparing data recovery plans.

Fleming Prehistoric Archaeological Site, Morris County, N.J. Participated as senior staff member in all aspects of the large Phase I, II & III archaeological investigation.

Participated in field, lab and reporting on numerous prehistoric archaeological sites in New Jersey, Connecticut, Pennsylvania, New York and New Mexico.

Full Curriculum Vitae available on request.

Name & Title: Kevin M. Walczak, Archaeologist

Project Assignment: Principal Investigator

Years Experience: 7 **With This Firm:** 2 **With Other Firms:** 5

Education: Degree(s)/Years/Specialization

M.A. / 1995 / Archaeology (University of Wisconsin-Madison) / Remote Sensing

B.A. / 1991 / Anthropology, Ancient Greek & Latin (double major), (Rutgers University)

1990 / Archaeology (Intercollegiate Center for Classical Studies, Rome, Italy)

Professional Experience:

1995 - Field Director, CRCG

1994 - Field Director, Midwest Archaeological Consulting, Inc.

1992-1993 - Field Director, Kittatinny Archaeological Research, Inc.

1991-1992 - Field Crew Member, Hunter Research, Inc.

Other Experience and Qualifications Relevant to the Proposed Project:

Kevin Walczak has worked on both historic and prehistoric period archaeological sites throughout the Middle Atlantic and Middle Western regions. In addition to his experience in North America he has also conducted fieldwork in Northern Europe and the Mediterranean. Mr. Walczak's work in North America has included the assessments of impact under state and local regulations as well as Section 106 of the National Historic Preservation Act. His areas of particular expertise include lithic analysis, inter- and intrasite spatial analysis, use of geographical information systems (GIS), use of global positioning systems (GPS), use of electro-optical and microwave remote sensing systems, and the application of exploratory multivariate analysis in archaeology.

Mr. Walczak has participated in a variety of cultural resource investigations of prehistoric sites ranging from Paleoindian to Historic contact in New Jersey and Pennsylvania and Mississippian sites in Wisconsin. In addition he has conducted investigations of prehistoric hunter-gatherers from the Paleolithic through the Neolithic throughout Europe. Mr. Walczak has also participated in a variety of cultural resource investigations at historic sites ranging from the 17th through 20th centuries, revolutionary battle sites, and historic farmsteads.

Cultural Resource Surveys on Texas Eastern Gas Pipelines: Fulton, Bedford, Chester, Bucks, & Delaware Counties, Pa. and Somerset & Middlesex Counties, New Jersey Investigations of interstate pipeline systems in various environmental settings.

Archaeological Investigations at the Wal-Mart Catskill Site, Greene County, New York. Consulting and investigations of complex Native American archaeological site for this fast-track project.

Archaeological & Architectural Surveys: Wal-Mart, Exton, West Whiteland, Chester County, Pa. Multi-part studies of several prehistoric and historic sites on large property.

PSE&G's Estuary Enhancement Program, Delaware & New Jersey. Mr. Walczak participated in studies investigating sensitivities and treatment of historic and archaeological sites, as part of a 16,500 acre project. The study area included over 100 tracts in the seven counties and two states which surround the Delaware Bay.

Phase II Archaeological Investigations: Glenbrook Project, Marlboro, New Jersey. Mr. Walczak directed fieldwork on this intensive study of deeply buried land surfaces and archaeological deposits.

Full Curriculum Vitae available on request.

APPENDIX 2:
HISTORIC PRESERVATION OFFICE
ANNOTATED BIBLIOGRAPHY FORM

**HISTORIC PRESERVATION OFFICE
ANNOTATED BIBLIOGRAPHY FORM**

Author(s): Richard Veit and Kevin Walczak (Cultural Resource Consulting Group)
Title: Phase IA Cultural Resource Investigation: The Wood-Ridge Site, Wood-Ridge And Carlstadt Boroughs, Bergen County, New Jersey
Location: Bounded by Berrys Creek to the east, Nevertouch Creek to the south, and Ethel Boulevard to the north.
Drainage Basin: Hackensack River
USGS Quad: Weehawken
Project: Potential remediation of Superfund site
Level of Survey: Phase IA (reconnaissance-level)
Cultural Resources: none